

CLAIMS

1. A DC/DC voltage converter comprising:

• a first positive terminal (1) and a first negative terminal (2) for connection respectively to two terminals of a high-voltage electrical network;

• a second positive terminal (3) and a second negative terminal (4) for connection respectively to two terminals of a low-voltage electrical network; and

• n cells (100, 200, ..., 600) connected in parallel, where n is an integer greater than unity, disposed between said first positive and negative terminals (1 and 2) and between said second positive and negative terminals (3 and 4), each cell comprising a chopper DC/DC converter, each having a first circuit branch interconnecting said first and second negative terminals (2 and 4), a second circuit branch including an inductor (14, 24, ..., 64) and interconnecting said first and second positive terminals (1 and 3), chopper means comprising at least one chopper switch, and a management unit (C1) adapted to control OFF and ON switching of the chopper switch with a determined duty ratio;

in which each cell further comprises a single protection transistor (13, 23, ..., 63) disposed in said second circuit branch and associated with a protection management unit (P) for taking said cell (100, 200, ..., 600) out of service independently of the other cells.

2. A converter according to claim 1, in which the protection transistor (13, 23, ..., 63) of each cell (100, 200, ..., 600) is a MOS transistor connected in series in said second circuit branch of the cell between the inductor (14, 24, ..., 64) and said second positive terminal (3), and including an intrinsic diode (20, 30, ..., 70) connected to the inductor (14, 24, ..., 64) by its cathode and to said second positive terminal (3) by its anode.

3. A converter according to claim 1, characterized in that it includes a protection switch (801) which is common to all of the cells, and which is associated with a portion of the converter that is opposite from the single protection transistor in each cell.

4. A converter according to claim 1, characterized in that the single protection transistor (13, 23, ..., 63) in each cell is connected in a high-voltage portion of the cell.

5. A converter according to claim 4, in which the protection transistor (13, 23, ..., 63) is a MOS transistor connected in series in said second circuit branch so as to be immediately adjacent to said first positive terminal (1), and having an intrinsic diode (20, 30, ..., 70) connected to said first positive terminal (1) by its cathode.

6. A converter according to claim 4, characterized in that it includes a protection switch (801) which is common to all of the cells and which is associated with a low-voltage portion of the converter.